

AN 1998-558709 [48] WPIDS
 DNN N1998-435625 DNC C1998-167363
 TI Lead-free tin-antimony-silver solder alloy - contains copper and-or nickel
 for improved mechanical and soldering properties.
 DC L03 M23 M26 P55
 IN SHIOKAWA, K; TADA, S; YAMASHITA, M
 PA (FJIE) FUJI ELECTRIC CO LTD
 CYC 3
 PI DE 19816671 A1 19981022 (199848)* 14
 JP 10286689 A 19981027 (199902) 5<--
 JP 11058066 A 19990302 (199919) 5
 JP 11077366 A 19990323 (199922) 5
 US 6179935 B1 20010130 (200108)
 JP 3296289 B2 20020624 (200243) 4
 JP 3353640 B2 20021203 (200281) 6
 JP 3353662 B2 20021203 (200281) 5
 DE 19816671 C2 20030918 (200361)
 ADT DE 19816671 A1 DE 1998-1016671 19980415; JP 10286689 A JP 1997-97828
 19970416; JP 11058066 A JP 1997-212969 19970807; JP 11077366 A JP
 1998-169937 19980617; US 6179935 B1 US 1998-59268 19980414; JP 3296289 B2
 JP 1998-169937 19980617; JP 3353640 B2 JP 1997-97828 19970416; JP 3353662
 B2 JP 1997-212969 19970807; DE 19816671 C2 DE 1998-1016671 19980415
 FDT JP 3296289 B2 Previous Publ. JP 11077366; JP 3353640 B2 Previous Publ. JP
 10286689; JP 3353662 B2 Previous Publ. JP 11058066
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 JP 1997-191391 19970716
 AB DE 19816671 A UPAB: 19981203
 A novel tin-based solder alloy contains greater than 0 and at most 3.5
 weight% Sb, 0-3.0 weight% Ag and a predetermined amount of a property-improving
 first and/or second additive. Preferably, the first additive consists of
 greater than 0 and at most 1.0 weight% each of Cu and/or Ni and the second
 additive consists of greater than 0 and at most 1.0 weight% each of P and/or
 Ge. Also claimed is a novel tin-based solder alloy containing greater than
 0 and at most 4.0 weight% Ag and greater than 0 and at most 2.0 weight% Cu
 and/or greater than 0 and at most 1.0 weight% Ni, optionally together with
 greater than 0 and at most 1.0 weight% each of P and/or Ge.
 USE - For soldering metals in the assembly of semiconductor
 components.
 ADVANTAGE - In the lead-free solder alloys, the first additive (Cu
 and/or Ni) provides improved heat resistance, strength, thermal fatigue
 strength, wetting properties, thermal fatigue strength and bonding
 strength to a copper substrate, while the second additive (P and/or Ge)
 provides oxidation resistance.
 Dwg.1/3